

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) A method of etching an uniform silicon layer, comprising:

providing a patterned silicon layer with etching residues on sidewalls thereof;

treating said patterned silicon layer with etching residues on sidewalls thereof using a gas comprising oxygen and a silicon etching agent to thereby form an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer; and

etching the etching buffer layer, the etching residues, and the patterned silicon layer until the thickness of the patterned silicon layer is reduced.

2. (Currently amended) The method as claimed in of claim 1, wherein the etching buffer layer comprises silicon oxide (SiO₂).

3. (Currently amended) The method as claimed in of claim 2, wherein the etching buffer layer is formed by oxidation.

4. (Currently amended) The method as claimed in of claim 1, further comprising Cl₂, SF₆, or HBr used during etching.

5. (Currently amended) The method as claimed in of claim 1, wherein the thickness of the etching buffer layer is about 5~20nm.

6. (Currently amended) The method ~~as claimed in~~ of claim 1, wherein the thickness of the patterned silicon layer is about 120~250nm.

7. (Previously presented) A method of etching an uniform silicon layer, comprising:

providing a silicon layer;

forming a mask with patterns on the silicon layer;

performing a first etching to pattern the silicon layer using the mask as a shield, to form a patterned silicon layer with patterns and etching residues on sidewalls thereof;

removing the mask;

treating said patterned silicon layer with patterns and etching residues on sidewalls thereof using a gas comprising oxygen and a silicon etching agent to thereby form an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer; and

performing a second etching to remove the etching buffer layer and the etching residues, to reduce the thickness of the patterned silicon layer.

8. (Currently amended) The method ~~as claimed in~~ of claim 7, wherein the mask is a photoresist layer.

9. (Currently amended) The method ~~as claimed in~~ of claim 7, wherein the etching buffer layer comprises silicon oxide (SiO₂).

10. (Currently amended) The method ~~as claimed in~~ of claim 9, wherein the etching buffer layer is formed by oxidation.

11. (Currently amended) The method ~~as claimed in~~ of claim 7, further comprising Cl₂, SF₆, or HBr used during the second etching.

12. (Currently amended) The method ~~as claimed in~~ of claim 7, wherein the thickness of the etching buffer layer is about 5~20nm.

13. (Currently amended) The method ~~as claimed in~~ of claim 7, wherein the thickness of the patterned silicon layer is about 120~250nm.

14. (Previously presented) A method of etching a silicon layer to avoid non-uniformity, comprising:

providing a silicon layer;

forming a mask with patterns on the silicon layer;

performing a first etching to pattern the silicon layer using the mask as a shield, to form a patterned silicon layer with patterns and etching residues on sidewalls thereof;

removing the mask;

introducing a gas containing oxygen treatment, using a gas comprising oxygen and a silicon etching agent, to conformally form an etching buffer layer on the etching residues and the top surface of the patterned silicon layer; and

performing a second etching to remove the etching buffer layer and the etching residues formed on sidewalls thereof, to reduce the thickness of the patterned silicon layer.

15. (Currently amended) The method ~~as claimed in~~ of claim 14, wherein the mask is a photoresist layer.

16. (Currently amended) The method ~~as claimed in~~ of claim 14, further comprising Cl₂, SF₆, or HBr used during the second etching.

17. (Currently amended) The method ~~as claimed in~~ of claim 14, wherein the thickness of the etching buffer layer is about 5~20nm.

18. (Currently amended) The method ~~as claimed in~~ of claim 14, wherein the thickness of the patterned silicon layer is about 120~250nm.

19. (Currently amended) The method ~~as claimed in~~ of claim 14, wherein the gas comprises 90%~100% oxygen and not more than 10% etching agent used in second etching.

20. (Currently amended) The method ~~as claimed in~~ of claim 14, wherein the gas containing oxygen treatment is performed at about 10~90°C.

21. (Canceled).

22. (Previously presented) The method of claim 1, wherein said silicon etching agent comprises Cl₂, SF₆, or HBr.

23. (Currently amended) The method of claim 7, wherein said silicon etching agent comprises ~~no water~~ Cl₂, SF₆, or HBr.

24. (Currently amended) The method of claim 14, wherein said silicon etching agent comprises ~~no water~~ Cl₂, SF₆, or HBr.